Aquatic Invertebrate Fauna of the Mitta Mitta Valley, Victoria

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Introduction

This work formed part of the Environmental Study of the Mitta Mitta Valley in North-eastern Victoria in association with the building of the Dartmouth Dam and was carried out under the auspices of the State Rivers and Water Supply Commission of Victoria for the River Murray Commission. The finance available for the Environmental Study enabled a comprehensive survey of the invertebrate fauna of the valley and adjacent areas to be carried out with particular reference to the aquatic fauna of the inundation area and downstream of the dam. The first phase of the study, on which this report is based, was carried out between January 1973 and January 1975, and was intended to describe the fauna and to provide base-line data upon which a subsequent quantitative study and environmental monitoring could be based. This paper is a condensation of the aquatic results extracted from the full report submitted to the State Rivers and Water Supply Commission.

During the period of study, eleven collecting trips were made to the area and over 80 separate localities sampled in all seasons. All the main habitat types in the area were sampled and a variety of collecting techniques was used to ensure that a general picture of the fauna was obtained. Submerged stones, logs, etc., were searched and clinging animals picked off; aquatic vegetation was sampled using a dip net, and mud and gravel substrata were sampled using sieves. Flying insects were collected using the Malaise standing net or a 400 watt mercury-vapour lamp for night-flying insects. Only those insect groups with aquatic life stages are included in this paper.

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Study Area

The main area of interest for the study was the inundation area of the Dartmouth Dam and the Mitta Mitta River and its flood plain downstream from the dam. However, collections were made throughout the catchment as it provides refuge areas for many species. The main features of the study area are shown in Fig. 1.

The inundation area of the new Dartmouth Dam is a narrow, steep-sided valley widening out towards the northern end. Several small creeks, and one or two major tributaries, enter the main river in the inundation area, giving rise to gullies and several marshy places. Where the valley widens out, around Eight and Six Mile Creeks, Granite Flat and the site of Old Dartmouth at the junction of the Dart and the Mitta Mitta Rivers, extensive areas have been cleared and put down to pasture.

The Mitta Mitta Valley downstream from the dam can be considered in two parts with increasing modification of the environment as one goes downstream. The section of the valley between the dam and Mitta Mitta township is essentially similar to the northern part of the inundation area, with sections of steep-sided valley with dry sclerophyll forest interspersed with flatter land cleared and used for grazing. Below Mitta Mitta the valley widens out into a flood plain where the river slows and follows a wide, meandering course. Associated with the river is a series of flood-filled lagoons. Most of the land is cleared and used for farming except for the creek and river banks and gullies, where pockets of native vegetation remain.

The various aquatic habitats are characterised by the flow regime, the quantity and depth of water, and the amount and type of aquatic vegetation present in each. There is

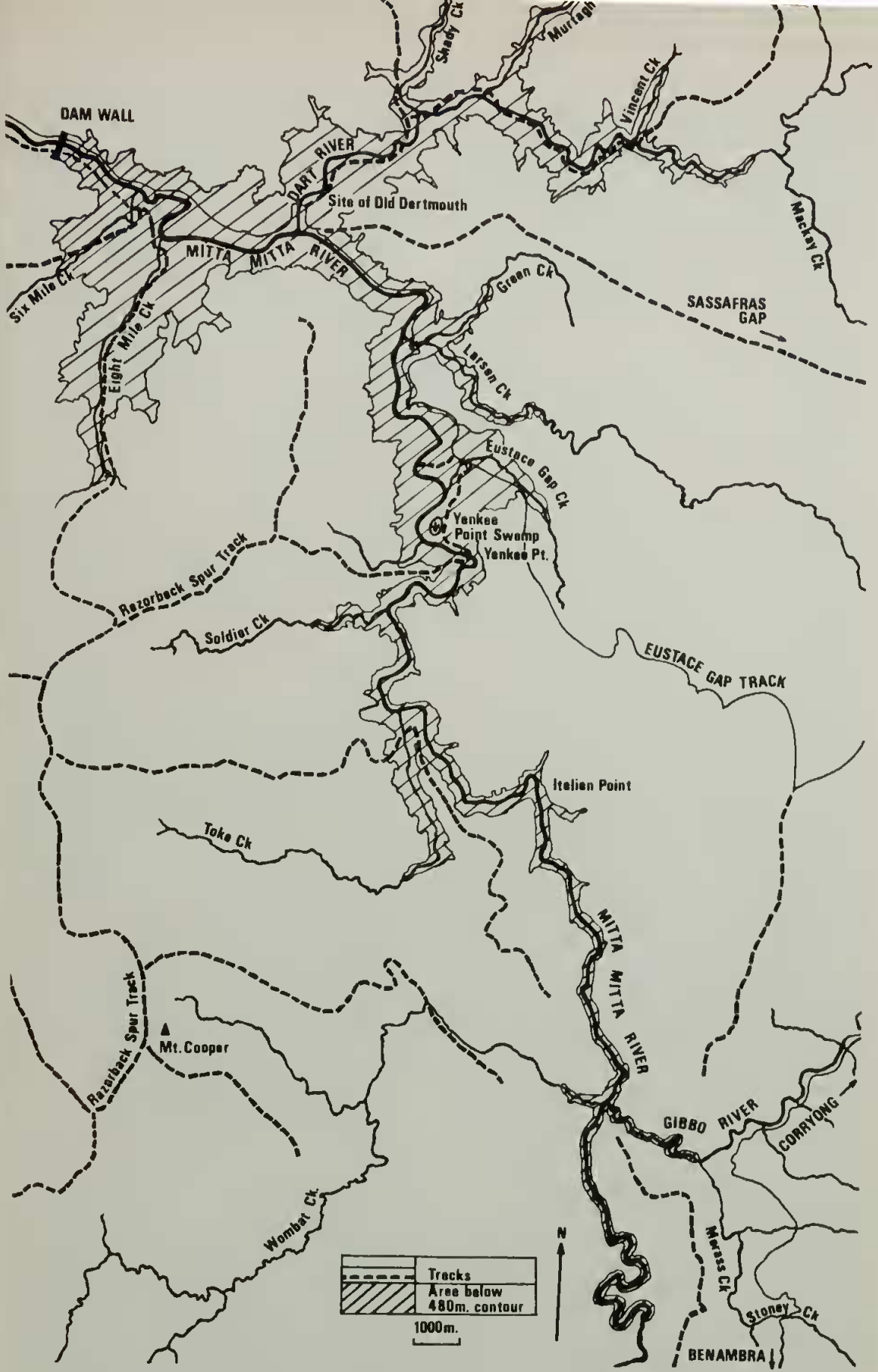

Fig. 1.—Map showing various features of the Upper Mitta Mitta Valley including the position of the Dartmouth Dam.

a very large natural variation in both the level of the water and the rate of flow in the various aquatic habitats, maxima being reached in both of these parameters during the spring as a result of snow melt in the catchment. Flood conditions occur sporadically at other seasons because of heavy rainfall in the catchment, but sustained long-period high flows are normal for this system in the spring and early summer. This season is one of high reproductive activity for many aquatic species (invertebrate) and particular attention was therefore given to these habitats in the spring.

The Mitta Mitta River, like most of the major streams in the area, is fairly shallow and swiftly flowing through a forested, steep-sided valley. It consists of riffle-rapid regions alternating with stretches of unbroken water. Riffle-rapid zones are those regions where the bed of the river slopes sharply and consists of large boulders and cobbles. The water flows rapidly over this region and the fast flow rate over the irregular substratum causes the water to become broken with waves and eddies. Between these regions are stretches where the slope of the stream bed is much less and the water is deep, forming pools of unbroken water. Here the substratum consists of a fine gravel grading to a silty mud, as the stream energy is much less and even fine particles carried by the water body through the riffle-rapid sections are dropped in these unbroken water stretches.

The Dart and Gibbo Rivers are two major tributaries which join the Mitta Mitta River within the inundation area, and the Snowy Creek is the largest tributary to join the Mitta Mitta River between the dam and the Hume Weir. The width and depth of these tributaries is less than that of the main river and the volume of water they carry is correspondingly less. They show the same riffle-rapid pool characteristics as the main river, though large boulder beds are less common.

There are many small creeks which flow into the main streams in the area through a variety of habitats in the catchment. Above the dam most creeks are very small, local drainage channels from a small area of slope. Large creeks, such as Larsen's Creek and Six Mile Creek, occur in the flatter areas of the catchment, draining large areas of land. After heavy rain, flood flows in these creeks are substantial.

The creeks, in the main, are very shallow with a bed of pebbles and gravel, and silt banks. They are often in steep-sided gullies and usually very overgrown with terrestrial and semi-aquatic plants. The creeks are very susceptible to drought conditions, when many dry out completely, and others contract to a series of small, stagnant, sheltered pools.

There are many places in the study area where shallow bodies of standing water, usually in hollows and local drainage basins, provide a very distinct and different aquatic habitat. These are high in both dissolved and suspended organic matter and have a dense and diverse flora of aquatic and semi-aquatic plants. They fall into two main categories, lagoon and marsh communities, depending on their relationship to the river,

In the lower Mitta Mitta Valley where the river winds through a wide alluvial plain, there exists an intricate system of lagoons and billabongs, separate from the river in times of normal flow, but filled and replenished by river water in time of flood, either directly by overtopping or through the aquifers and ground-water system.

Above the dam and in the few kilometres immediately downstream before the valley widens out, there are several areas where flat places and hollows in the terrain hold bodies of standing water, creating marsh communities. These are separate from the river system and rarely if ever receive water from the river, even in times of massive flood. They are fed by stream inflow from the surrounding country and have an outflow creek to the river in most cases.

Many of these are very small and temporary, partly or totally drying out every summer. However, there are several large swamps with permanent water, aquatic flora, and a significant area where the terrestrial vegetation is totally absent. The most significant of these is 0.5 km east of

Yankee Point where a swamp of an estimated 1-2 hectares occurs. The water is less than 1 m deep and completely overgrown by reeds, sedges and many aquatic species.

Main Fauna Elements

Detailed species lists are given in the appendix.

Porifera (Sponges)

Many specimens of an unidentified freshwater sponge were collected on the undersides of submerged logs in the river and major creeks — wherever there was sufficient width and depth to guarantee that the animals would be submerged in flowing water throughout the year. The sponges have tentatively been referred to the genus *Spongilla* and it is thought that only one species is present.

Annelida

Several freshwater oligochaete species were taken from the silty part of river backwaters and creeks where organic debris had accumulated. No specialist was available to identify the oligochaete material so no statement can be made about its ecological significance.

Small, round, aquatic leeches belonging to the family Glossiphoniidae were collected on submerged timber in the river and major creeks and in the lagoons in the lower Mitta Mitta Valley. A large population of the long, green and yellow striped leech *Richardsonianus australis* was found in the swamp 0.5 km NE of Yankee Point on the Eustace Gap Road. Small populations of this leech were found in one or two other small bodies of water.

Mollusca

The aquatic molluscan fauna is very extensive and several species are of interest and importance. Several specimens of the large freshwater mussell *Velesunio ambiguus* were found in the river, which also supported large populations of the pea mussel *Pisidium* sp. in the fine gravel. Two species of the family Hydrobiidae were collected from the river and major creeks. These constitute extensions of range of the species into the alpine and sub-alpine areas of north-east Victoria. Large populations of freshwater limpets were found in the creeks and backwaters of the river. The freshwater snail fauna is large and varied with several ecological associations being displayed. The lymnaeids are found mainly in the lower reaches of the river and the associated lagoons. Of the two genera of planispiral planorbiids, *Segnitila* sp. is largely confined to the lagoon and swamp situations whilst the rare *Gyraulus* sp. appears to be confined to the river and major creeks. One record of particular interest is the very narrow, elongate, pointed form of *Physastra* sp., an ecomorph, found in very large numbers in the swamp by Yankee Point.

Insecta

The aquatic insects collected on the survey reflect very well the diversity of aquatic habitats found in the area. Five orders of insects have wholly aquatic sub-adult stages in their life-cycles. These are the Ephemeroptera, Plecoptera, Trichoptera, Odonata and Megaloptera. A further five orders, the Diptera, Coleoptera, Hemiptera, Mecoptera and Lepidoptera, while not wholly aquatic, have a few species with aquatic larvae and so are included in this section of the report. Approximately 5000 specimens of aquatic insects were collected during the survey. Many of these were adults in the flying stages, though a great variety of insect larvae was also collected.

Specimens of the order Trichoptera (caddis-flies) were the most abundant in the collections of aquatic insects, comprising about half the material. This group was also the most completely identified of all the insect groups, being the subject of a special study by Dr. A. Neboiss. Fifteen families of caddis are represented in the collection with the family Leptoceridae having the most species present. The group is of prime importance in water-quality monitoring work as a great deal is known about the require-

ments of many of the species with regard to physical conditions in the water in order for them to survive and breed successfully.

The next most abundant order, the Ephemeroptera (mayflies) was represented by large numbers of both adults and larvae. Species of the three Victorian families were all present with the Leptophlebiidae predominating.

The order Plecoptera (stone-flies) was poorly represented in general collecting.

Ten families of aquatic Coleoptera (beetles) are represented in the collections. One interesting occurrence was a species of the family Hydrophilidae which had previously been recorded only from Central Australia.

The aquatic Hemiptera (true bugs) were represented by ten families —⅔ of the Australian families recognised as having aquatic stages.

Many families of Diptera (flies) have aquatic larvae although none have aquatic adults. Habitats in which larvae were caught varied from flowing water to stagnant pools. Mosquitoes (Culicidae) are well known from this latter environment and Chironomidae also live in these places. Dixidae on the other hand occupy vegetation at the edge of flowing water, and Simuliidae are found attached to stationary objects in running water and there are specific differences in rate of flow tolerated and type of substratum preferred.

The order Odonata (dragonflies, damselflies) was well represented in the survey with 11 of the 16 families from the two Australian sub-orders being identified. Both larvae and adults were caught, the larvae from stones and vegetation in rivers, creeks, dams and swamps, and the adults flying near those bodies of water.

Crustacea

The Class Crustacea is divided into eight sub-classes, four of which were recorded from the survey area. Seven orders were identified and the small number of specimens obtained indicates that the collecting techniques were not geared towards obtaining the mostly minute terrestrial Crustacea or the various aquatic species. The species collected ranged from minute ostracods in the sand of the river-bed to large free-swimming crayfish; from the smaller landhoppers in the soil and leaf litter to the larger slaters.

A notable occurrence was the large population of *Lepiduris viridis* (shield shrimps — Notostraca) in Lake Omeo in October.

Faunal Associations

In this section an attempt is made to draw together the findings of the various taxonomic studies and present a co-ordinated picture of the invertebrate fauna of the various major habitat divisions of the survey area. It is felt that the presentation of the faunal data as faunal associations in habitats will be of more practical value.

River and Major Tributaries

The Mitta Mitta River and its major tributaries the Dart and Gibbo Rivers above the dam, and the Snowy Creek downstream, are relatively shallow, fast-flowing streams of clear, high-quality water (Fig. 2). They are composed of alternating sections of riffle-rapid areas and deeper pools of unbroken water, with a mainly boulder and gravel bottom. There are also small areas of backwaters along some of the banks where the flow rate is very low and the bottom is composed of silt with a high content of decaying vegetable matter. The fauna of these streams consists either of species capable of living in areas of swiftly-flowing water or species which prefer low-flow regimes such as those found in the backwaters. The species from the high-flow areas have structural and behavioral adaptations and specialisations which prevent them being swept away. The majority of the free-living, non-attached forms, such as most of the insect larvae, have flattened bodies and very efficient holding structures, and are cryptic in habit, living in crevices and under stones, away from the main current. Freshwater sponges are attached to submerged logs in this area. The freshwater limpets are found in great numbers attached to the undersides

Fig. 2.—Mutta Mutta River at the junction with the Dart River

of stones in the stream, while the minute hydrobiid gastropods are found in crevices in the stones and submerged timber.

Large numbers of insect larvae inhabit this environment, including representatives from most aquatic orders, but the main families and/or orders are as follows: larvae and adults of Helminthidae (Coleoptera), larvae of Chironomidae (Diptera) Ephemeroptera and Trichoptera, and Hydracarina (water-mites). These groups are all found in the main part of the river, attached or clinging to submerged rocks or branches. Helminthidae, in particular, characterises this fast-flowing section and there are specific differences in the rate of flow tolerated by these beetles.

In the deeper pools of the river, the large crayfish *Euastacus armatus* is a notable inhabitant not found in the shallower, more turbid sections. The backwaters and sandy areas also have their typical inhabitants — the former a wide variety of aquatic larvae and adults, the latter a very limited fauna — mainly numerous ostracods. The finer substratum of the pools and backwaters also provides for a number of infaunal species such as the large freshwater mussel *Velesunio ambiguus* and the small pea-mussel *Pisidium*. The high organic-detritus content of the backwater areas and the good growths of aquatic vegetation, provide suitable habitats for several gastropod molluscs, for amphipod and decapod crustacea, such as the shrimp *Paratya*, and for a greater variety of insect larvae and adults, particularly groups like the Hemiptera.

Creeks

The creeks of the area are small, shallow bodies of flowing water with a great deal of aquatic and semi-aquatic vegetation and a substratum composed largely of rocks and organic debris. They are able to exist in this form by virtue of the low flow rate throughout most of the year, with high flows only of short duration after heavy rain. Many of the creeks are subject to periodic drying out and contraction into a series of isolated pools. This further restricts the fauna able to inhabit this habitat (Fig. 3).

In the parts of the creeks which can rely on a permanent aquatic habitat, a large fauna of aquatic species is found, closely similar to that found in the backwater areas of the river. Large populations of freshwater limpets are found under pebbles, with other gastropods on the aquatic vegetation, and the small pea-mussel buried in the silty mud.

Most insect orders are represented, but the species content differs from that of the river fauna. Larval species present are characteristic of a mud-bottom habitat, including several species of chironomids, Odonata, Ephemeroptera and Hemiptera, of

Fig. 3.—Small creek in the Upper Mitta Mitta Valley.

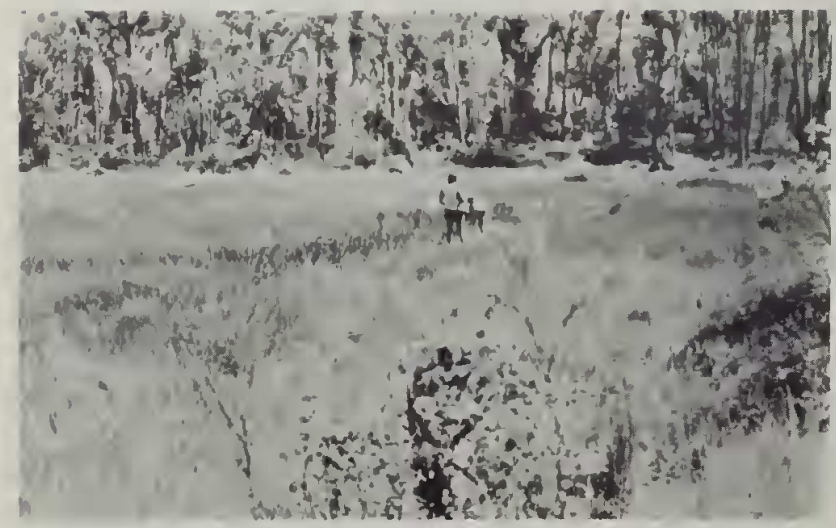

Fig. 4.—Yankee Point Swamp in the central part of the inundation area.

which the water striders, Gerridae, are common. Flies of the family Ephydridae are found commonly hovering above the water surface.

As these creeks often dry up and become almost non-existent, their inhabitants are often those adapted to completing a rapid life-cycle when conditions are suitable after rain has re-established the flow, an example of this being mosquitoes of the genus *Aedes*. Similarly, larvae of the black fly *Austrosimulium pestilens* can develop only in the turbulent waters of flooding streams.

Lagoon and marsh communities

The lagoons and marshes in the survey area are shallow still-water habitats, with very heavy aquatic and semi-aquatic vegetation cover. The substratum is decomposed vegetable matter which has a very fine particle size, almost like a flocculent precipitate, which renders the water acid and brown. The two communities have very similar faunas but differ in some aspects of their faunal associations, which is a reflection of their different geographical positions in the survey area and of their physical natures.

The lagoons are found in the lower Mitta Mitta Valley only and are topographically part of the river system. They are largely filled and replenished directly by flood waters from the river, principally in the spring and early summer. Many have some stretches of open water and can be deep in parts where they have been formed from an old river course. The lagoons have large populations of aquatic Hemiptera and a wide variety of Diptera. They also have a variety of larvae and adults of the order Coleoptera with the Dytiscidae being an obvious example. Several Trichoptera are also found in the lagoons. Ostracods and cladocerans occur in large number and a variety of freshwater gastropods are in evidence on the vegetation. Freshwater limpets occur on the rushes and lymnaeid snails are found on the mud surface. Poulations of sphaeriid bivalves live in the coarser sediments, and large populations of nematodes and oligochaete worms live in areas of high organic content.

Marshes are regions of shallow water, mainly upstream from the dam site, which are not directly connected with the river and are not replenished by flood waters. They are usually shallower than the lagoons and have little open water, having complete vegetation cover. Like the lagoons, the marshes also have large populations of adult and larval insects. The aquatic bugs, particularly the Corixidae and Notonectidae, are very common, together with large populations of Diptera and Coleoptera.

Yankee Point Swamp is the large swamp of approximately 1-2 hectares on the Eustace Gap-Yankee Point Tract, near the middle of the inundation area, about 0.5 km from Yankee Point (Fig. 4). It is situated in a large depression, well above river level and fed by small creeks and general ground run-off. It has a maximum water depth of 1.0 to 1.5 m and even in very dry seasons has permanent water. There is very little open water, the whole area being occupied by dense growths of rushes and sedges, and aquatic plants which inhabit the areas where water will remain all year. It is an open area with no tree canopy cover, though it is surrounded by dry sclerophyll forest. The water is brown and acidic, with a high level of dissolved and suspended organic matter.

The most notable members of the fauna of the swamp are the large population of dragon flies *Diplacodes* spp. and the red and blue damsel fly *Ischnura aurora*. Large populations of the leech *Richardsonianus australis* are present in the water, together with large numbers of ostracods and three species of freshwater gastropod molluscs, *Lymnaea tomentosa, Segnitila* sp. and an unusual elongate ecomorph of *Physastra* sp.

No other swamp with this range of freshwater invertebrate life or the character of Yankee Point Swamp was found in the survey area.

Conclusions

This study has probably been one of the most comprehensive studies of an invertebrate fauna carried out anywhere in Australia. It has been a unique opportunity to carry out extended collections of the fauna over at least one full year, thus ensuring complete sampling at every season. Even with all the difficulties of collecting and identifying the very broad spectrum of animal forms, a good overall picture has emerged of the fauna inhabiting the area before the major construction work of installing the dam has imposed its effect on the environment.

The whole area of study, and in particular the area upstream from the dam site, is largely unspoilt, in the sense that the influence of man has not been very severe and many native plant and animal assemblages are still present. Nevertheless, it has to be recognised that the entire area has undergone extensive environmental modification due to the influence of European man over the last 100 years. No part of the study area can be classified as untouched, because there are extensive introductions and natural colonisation by many species of exotic animals and plants. However, by the general standards of environmental classification in Victoria today, the survey area would rate fairly high on the list of relatively

unspoilt areas with a wealth of natural species and a good ecological balance.

Acknowledgements

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APPENDIX

Below are detailed the aquatic invertebrates from the Mitta Mitta Valley, Victoria. Many of the species could not be identified to species and these are included as species or generic groups.

MOLLUSCA:	
GASTROPODA:	
Hydrobiidae	*Potomopyrgus nigra*
	Pupiphrix grampianensis
Lymnaeidae	*Lymnaea tomentosa*
	L. lessoni
Planorbiidae	*Physastra* sp.
	Bulinus (Isidorella) sp.
	Gyraulus sp.
	Segnitila sp.
Ferrissiidae	*Ferrissia (Pettancylus) tasmanicus*
	F. (P.) petterdi
BIVALVIA:	
Hyriidae	*Velesunio ambiguus*
Sphaeriidae	*Pisidium* sp.
INSECTS:	
ORDER EPHEMEROPTERA:	
Baetidae	*Centroptilum* spp.
	Cloeon sp.
	Coloburiscoides spp.
	S.F. Baetinae
	Tasmanophlebia sp.
	Mirawara sp.
	Bungara narilla
Leptophlebiidae	*Atalophlebioides* sp.
	Atalophlebia sp.
	Jappa sp.
	near *Massartella* sp.
	Kirrara sp.
Caenidae	*Tasmanocoenis* sp.
ORDER ODONATA:	
Corduliidae	*Hemicordulia tau*
	Unidentified larvae
Chlorolestidae	*Synlestes* sp.
Lestidae	*Austrolestes* sp.
Amphipterydidae	*Diphlebia lestoides*
	D. nymphoides
Coenagrionidae	*Ischnura aurora*
Gomphidae	*Austrogomphus guerini*
	Unidentified larvae
Megapodagrionidae	*Argiolestes icteromelas*
Libellulidae	*Diplacodes* sp.
	D. bipunctata
	D. melanopsis
	Nannophya delei
	Unidentified larvae
Aeshnidae	*Aeshna brevistyla*
	Acanthaeschna spp.
	A. longissima
	Unidentified larvae
Protoneuridae	
Synthemidae	
ORDER PLECOPTERA:	
Gripopterygidae	*Trinotoperla nivata*
	T. yeoi
	Dinotoperia serricauda
	D. christinae
Eustheniidae	*Stenoperla* sp.
Austroperlidae	
ORDER HEMIPTERA:	
Notonectidae	*Enitharea woodwardi*
	Anisops sp.
	A. theinemanni
	A. gratus
	A. deanei
	Unidentified nymphs

Corixidae	*Diaprepocoris barycephala*
	Micronecta sp.
	M. australiensis
	M. gracilis
	M. annae annae
	M. annae illiesi
	M. robusta
	Sigara (Tropocorixa) sp.
	S. (T.) truncatipala
	S. (T.) sublaevifrons
	Agraptocorixa spp.
	A. parvipunctata
	A. eurynome
	Unidentified nymphs
Naucoridae	*Naucoris congrex*
Veliidae	*Microvelia* sp.
Hydrometridae	*Hydrometra* sp.
	H. risbeci
Belostomatidae	*Sphaerodema eques*
Ochteridae	*Ochterus* sp.
	O. marginatus
Gelastocoridae	*Nerthra nudata*
Nepidae	*Laccotrephes tristis*
	Ranatra dispar
Gerridae	
Mesoveliidae	
Pleidae	

ORDER MEGALOPTERA:

Corydalidae	*Archichauliodes guttiferus*
	Unidentified larvae

ORDER COLEOPTERA

Hydrophilidae	*Berosus* spp.
	B. near *majusculus*
	B. nutans
	B. involutus
	B. australiae
	Paracymus pygmaeus
	Paranacaena lindi
	Limnoxenus zelandicus
	L. mastersi
	Helochares sp.
	H. australis
	Enochrus sp.
	E. elongatulus
	E. eyrensis
Helodidae	*Macrohelodes princeps*
	M. lucidus
	Cyphon spp.
Psephenidae	*Sclerocyphon* sp. ?
Spercheidae	*Spercheus mulsanti*
Hydraenidae	*Hydraena luridipennis*
Gyrinidae	*Aulonogyrus strigosus*
Helminthidae	*Austrolimnius* spp.
	A. victoriae
	A. victoriensis
	A. montanus
	A. diemensis
	A. waterhousei
	Notriolus sp.
	N. allynensis
	Simsonia spp.
	S. purpurea
	S. wilsoni
	S. leai
	Kingolus sp.
Dytiscidae	*Bidessus* sp.
	B. bistrigatus
	B. amabilis
	Necterosoma sp.
	N. penicillatum var. *costipenne*
	Antiporus femoralis
	A. blakei
	Rhantus pulverosus
	Lancetes lanceolatus
	Eretes australis
	Homodytes scutellaris
	Platynectes decempunctatus
	Chostonactes gigas
	Macroporus hamatus
	Hyphydrus decemmaculatus
	Sternopriscus sp.
	S. hansardi
	S. meadfooti
	Hydrovatus sp.
	Batrachomatus burnsi
Hydrochidae	*Hydrochus* sp.
Heteroceridae	*Heterocerus* sp.

ORDER MECOPTERA:

Nannochoristidae	*Nannochorista* sp.

ORDER DIPTERA:

Blephariceridae	
Simuliidae	
Chironomidae	
Culicidae	
Dixidae	
Tanyderidae	
Ceratopogonidae	near *Atrichopogon* sp.

ORDER TRICHOPTERA:

Limnephilidae	*Archaeophylax carnarus*
	Unidentified larvae

Sericostomatidae	*Costora* sp.
	Lingora sp.
	Hampa patona
Helicopsychidae	*Helicopsyche* sp.
	Unidentified larvae
Tasimiidae	*Tasimia* sp.
Odontoceridae	*Atriplectides dubia*
	Morilia sp.
Calamoceratidae	*Anisocentropus latifascia*
	Unidentified larvae
Philorheithridae	*Kosrheithrus tillyardi*
	Aphilorheithrus stepheni
	Austrheithrus dubitans
	Ramirheithrus virgatus
Leptoceridae	*Triplectides* 3 spp.
	Hudsonemar sp.
	Notalina 3 spp.
	Oecetis sp.
	O. inscripta
	O. australis
	Triaenodes volda
	Lectrides varians
	Leptorussa russata
Hydropsychidae	*Cheumatopsyche* spp.
	Asmicridea edwardsi
	Unidentified larvae
Polycentropodidae	*Plectrocnemia australis*
	Nyctiophylax sp.
Psychomyiidae	*Ecnomus* sp.
	Unidentified larvae
Philopotamidae	*Hydrobiosella waddoma*
	Chimarra sp.
	Unidentified larvae
Rhyacophilidae	*Taschorema* sp.
	T. nigritum
	T. evansi
	Ulmerochorema 3 spp.
	Apsilochorema gisleum
	Unidentified larvae
Glossosomatidae	*Agapetus* sp.
	Unidentified larvae
Hydroptilidae	3 species

ORDER LEPIDOPTERA:	
Pyralidae	S.F. Nymphulinae
NON-INSECT ARTHROPODA:	
CLASS ARACHNIDA:	
ORDER ARANEAE:	
Tetragnathidae	*Tetragnatha* sp.
	T. demissa
Pisauridae	
Lycosidae	*Geolycosa pictiventris*
	Lycosa sp.
	Trabea sp.
	?*Trochosa* sp.
ORDER ACARINA:	
Lebertiidae	*Frontipoda* sp.
Hydrachnidae	
CLASS CRUSTACEA:	
SUB-CLASS BRANCHIOPODA:	
ORDER CLADOCERA:	
ORDER ANOSTRACA:	
ORDER CONCHOSTRACA:	
ORDER NOTOSTRACA:	
Apodidae	*Lepiduris viridis*
SUB-CLASS OSTRACODA:	
ORDER OSTRACODA:	
Cypridae	
SUB-CLASS COPEPODA:	
ORDER CALANOIDA:	
	Boeckella sp.
UNIDENTIFIED ORDER:	
SUB-CLASS MALACOSTRACA:	
ORDER AMPHIPODA:	
ORDER ANASPIDACEA:	
ORDER ISOPODA:	
Oniscidae	*Porcellio laevis*
Janiridae	*Iais pubescens*
ORDER DECAPODA:	
Atyidae	*Paratya australiense*
	Euastcaus armatus
Parastacidae	

Errata

In the article "Bat Survey of the Daylesford Area, Victoria" by Harold Parnaby (Vict. Nat. Vol. 94: 5 Oct. 1977) the graph on page 192 should be Fig. 2 and the graph on page 193 should be Fig. 1.